

April 16, 1993

CD-93-11 (ICI/LDV/LDT/SM)

Dear Manufacturer:

SUBJECT: CAFE Adjustment Coefficient for 1993 Model Year Passenger Automobiles

This letter is notification that the passenger automobile Corporate Average Fuel Economy (CAFE) adjustment 'c' factor for the 1993 model year is 0.00095.

On July 1, 1985, EPA promulgated final rules which established CAFE adjustments for 1980 and later model year passenger automobiles (50 FR 27127). These adjustments were granted to compensate for the fuel economy effects of past test procedure changes and, thus, maintain the stringencies of the CAFE standards at their established levels.

The adjustment equation incorporates a coefficient, the 'c' factor, which is specific to the model year. For 1988 and later model years, EPA laboratory humidity is the only variable which determines the 'c' factor (See enclosure to this letter for the humidity correction factor calculation). The 1992 calendar year EPA laboratory humidity showed the average humidity level to be 48.992 grains H<sub>2</sub>O per pound of dry air as measured by dew point hygrometer. This humidity level yields a calculated 'c' factor of 0.00095. This is the factor EPA will use in calculating final passenger automobiles CAFE's for the 1993 model year. Manufacturers should also use this correction factor in calculating their 1993 model year passenger automobile CAFE prior to EPA submission. Any questions or comments regarding the CAFE adjustment coefficient should be directed to Mr. Dave Good at (313) 668-4450.

Sincerely yours,

Robert E. Maxwell, Director  
Certification Division  
Office of Mobile Sources

Enclosure

Calculation of the Passenger Automobile CAFE  
Adjustment Coefficient for the 1993 Model Year

This enclosure presents the calculation of the passenger automobile Corporate Average Fuel Economy (CAFE) adjustment coefficient for the 1993 model year. The methodology detailed in the Summary and Analysis of comments (hereafter referred to as the S & A) for the July 1, 1985 CAFE adjustment rulemaking (50 FR 27127) is used to calculate the laboratory humidity coefficient.

Laboratory Humidity Correction Coefficient

$$Ch = Sh - (H_{75} - (H_{my} + 5))$$

where

$$S_h = \text{Humidity Sensitivity Coefficient (for 1981 and later model years)}$$

$$= -1.9 \times 10^{-4} / \text{grains H}_2\text{O/lb. dry air}$$

$$H_{75} = \text{Average Humidity in the 1975 model year (as measured by wet bulb psychrometer)}$$

$$= 49 \text{ grains H}_2\text{O/lb. dry air}$$

$$H_{my} = \text{Average Humidity in grains H}_2\text{O/lb. dry air for the model year of interest}$$

Since the humidity sensitivity coefficient and the average humidity in the 1975 model year are known, only the average humidity for the 1992 calendar model year needs to be determined to calculate the 1993 correction coefficient for humidity. The average humidity was established as the average humidity of the EPA laboratory over a

calendar year. This average humidity level must, however, be increased by 5 grains H<sub>2</sub>O/lb. dry air to make the current humidity measurements (which are taken with a dew point hygrometer) comparable with the 1975 model year measurements (which were taken with a wet bulb psychrometer).

Examination of EPA laboratory test data for the 1992 calendar year showed the average humidity level to be 48 . 992 grains H<sub>2</sub>O/lb. dry air. Using this data, the adjustment 'c' factor was calculated to be .00095.

(G:\Team3\Dave\Factor.493)